

Silver News

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Physical Silver Investment Expected to Surge by 27 percent in 2020

Global Demand and Mine Supply Affected by COVID-19 Pandemic

Silver Supply and Demand

Million ounces												Year on Year	
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020E	2019	2020E
Supply													
Mine Production	754.3	760.0	792.5	840.2	877.2	892.7	892.5	863.1	848.5	832.3	780.1	-2%	-6%
Recycling	206.0	232.4	216.0	192.7	175.0	166.5	164.5	167.8	167.8	169.9	181.1	1%	7%
Net Hedging Supply	43.4	11.9	0.0	0.0	10.7	2.2	-	-	-	15.7	-	na	na
Net Official Sector Sales	29.6	4.8	3.6	1.7	1.2	1.1	1.1	1.0	1.2	1.0	1.2	-15%	21%
Total Supply	1,033.3	1,009.2	1,012.2	1,034.7	1,064.1	1,062.4	1,058.0	1,031.9	1,017.5	1,018.9	962.4	0.1%	-6%
Demand													
Industrial	480.8	508.1	450.5	460.8	449.5	456.2	490.3	517.2	511.5	510.9	466.5	0%	-9%
Photography	69.5	61.6	52.5	45.8	43.6	41.2	37.8	35.1	33.8	32.7	28.2	-3%	-14%
Jewelry	174.6	162.3	159.3	186.9	193.0	201.7	188.4	195.2	201.9	200.2	153.6	-1%	-23%
Silverware	44.5	41.7	40.7	46.5	53.6	57.9	53.9	59.6	67.5	62.1	40.8	-8%	-34%
Net Physical Investment	197.6	273.1	241.9	301.9	284.6	312.6	214.4	156.8	166.4	187.0	236.8	12%	27%
Net Hedging Demand	-	-	40.4	29.3	-	-	12.0	2.1	8.4	-	5.0	na	na
Total Demand	967.2	1,046.8	985.3	1,071.3	1,024.3	1,069.7	996.9	966.0	989.6	993.0	930.9	0.3%	-6%
Market Balance	66.1	-37.7	26.9	-36.7	39.8	-7.3	61.2	65.9	27.9	26.0	31.5	-7%	21%
Net Investment in ETPs	133.0	-18.9	53.6	4.6	-0.5	-17.2	50.9	6.8	-22.3	81.7	350.0	na	329%
Market Balance less ETPs	-66.9	-18.8	-26.7	-41.3	40.3	9.9	10.2	59.1	50.2	-55.7	-318.5	na	472%
Silver Price (US\$/oz, London price)	20.19	35.12	31.15	23.79	19.08	15.68	17.14	17.05	15.71	16.21	20.60	3%	27%

Source: Metals Focus

“Exchange-traded product investment for the first time surpassed 1 billion ounces, achieving a record high of 1.062 billion ounces.”

The Silver Institute hosted its annual Interim Silver Market Review on November 17. Philip Newman, Managing Director at precious metals consultancy [Metals Focus](#), and his colleague Adam Webb, Director of Mine Supply, made the presentation during a webinar on November 17th.

Highlights included:

- The most significant development in the silver investment market this year has been the strength of silver-backed exchange-traded product (ETPs) demand. Investment in silver-backed ETPs surpassed 1 billion ounces, for the first time, achieving a record high of 1.062 billion ounces. For the full year, Metals Focus forecasts an increase of 350 Moz. on end-2019 levels, compared with last year’s rise of 81.7 million ounces (Moz).
- Physical investment is expected to surge by 27 percent to 236.8 Moz. in 2020, which would be a 5-year high. The largest retail market for silver bullion bars and coins was the US with a projected 62 percent gain.
- The silver price has risen strongly, achieving an intra-year gain (through November 13) of 38 percent, as the pandemic has led to a surge in safe-haven demand. In terms of the full-year average, Metals Focus expects the silver price to rise by 27 percent year-over-year to an average US\$20.60. This would represent the highest annual average since 2013.
- Because of COVID-19 related lockdowns by several major producers, especially in Mexico, Peru and China, silver mine production is expected to fall by 6.3 percent in 2020 to 780.1 Moz. Most mines have returned to full production, but localized outbreaks leading to lockdowns could occur.
- The COVID-19 pandemic has had a marked impact on silver demand, especially in March and April. Although demand has partially recovered, most areas are still on track for full-year losses. Industrial fabrication, for example, is forecast to drop to a five-year low. This is due to lockdown restrictions, supply chain disruptions, lowered inventory replenishment and factories facing labor supply problems.

[For more details, visit the Silver Institute website.](#)

Heraeus Gets License for Silver/Ruthenium Antibacterial Coating

By Trevor Keel, PhD., Technical Director to
The Silver Institute

[Heraeus](#), a technology group headquartered in Hanau, Germany, has acquired the exclusive license for AGXX particles, a silver-based antimicrobial protective shield from Berlin start-up [Largentec](#), company officials said.

“We are currently working at full speed to introduce AGXX particles into materials and products that are susceptible to colonization by germs,” said Martin Danz, Head of Business Development at Heraeus Precious Metals, in a prepared statement.

The AGXX coating contains two metals -- silver and ruthenium -- and is applied to surfaces needing antibacterial protection. These two metals work together as a catalyst to form a type of oxygen that kills a wide range of microbes without releasing any metal ions into the environment. According to Heraeus, the antimicrobial effect of AGXX has been successfully tested against more than 130 microorganisms, including *E. coli.*, and no evidence of resistance has yet been observed.

AGXX has been tested in some of the harshest environments, including on board the International Space Station. The coating was applied for 6, 12, and 19 months each at fixtures the crew touched frequently, such as the toilet door. The antimicrobial coating strongly reduced the bacterial load on surfaces. Back on Earth, Heraeus believes AGXX can be formulated for use in a range of potential applications such as antifouling and facade coatings, air filtration systems, face masks and medical devices.



LINE: HERAEUS

The AGXX antibacterial coating strongly reduced bacteria on the International Space Station.

Silver Oxide Compound Helps Keep Solar Panels Dust-Free

Dust and dirt accumulating on solar cells, especially in desert areas, lowers their efficiency and requires continual cleaning to keep them efficiently generating electricity.

Scientists from Egypt's Beni-Suef University and the German University in Cairo (GUC) may have found a solution. They have tested a solar array cleaning method that uses a nanocoating of silver oxide, tin oxide, silicon oxide, platinum, ammonia and water that keeps dirt from sticking to the solar panels. This technique is used in combination with a mechanical vibrating mechanism that knocks off much of the non-clinging dust and dirt.

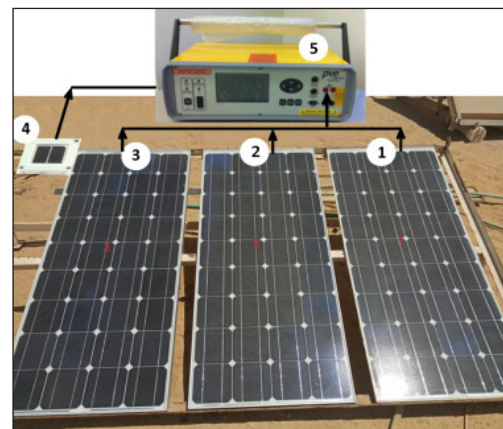
The team tested the system -- which knocks off dust by shaking the panels twice daily -- and found that the array only needed physical cleaning once a month compared to the usual four times a month. Even without the shaking mechanism, using only the nanocoating, the array needed to be physically cleaned just twice a month, the scientists reported in the journal [Energy Reports](#).

“The results show that the average electrical efficiency of the PV panels with coating and mechanical vibrator has decreased by 12.94% during six weeks of operation, whereas the efficiency of the photovoltaic (PV) panel with [only the] coating dropped by 24.46%. However, the reference [no coating or shaking mechanism] panel had a drop in efficiency of 33%. Dust mitigation using coatings is an effective technique in cleaning solar panels, and its performance can be improved if a vibration system is applied,” the authors noted in their report.

These saving are not trivial, the authors said. “Dust accumulation on a solar-village powered by PV panels near Riyadh in Saudi Arabia indicated a 32% reduction in performance after eight months without cleaning. Dust accumulation on PV panels in Kuwait City can cause a power reduction of 17%, and the impact of dust on performance would be higher in summer and spring than that in winter and autumn.”

In order to prevent cracking damage to the solar panels, the shaking motor mechanism does not touch the panels directly but only its iron base. The motor itself is powered by the solar panels and set to automatically shake the array twice a day. The times are important. One vibration is set at 3 a.m. before dew settles on the panels making the dust more difficult to dislodge. The other shaking is at noon to make sure the panels are clean before the most intense period of sunshine.

The group is planning to test how different tilt angles affect the cleaning efficiency of the system.



GUC

Experimental setup that consists of three solar panels installed outdoors in the German University in Cairo (1) The reference PV panel, (2) PV panel with coating, (3) PV panel with coating and vibration, (4) solar irradiance sensor and (5) I-V characteristics measuring device.

Global Silver Jewelry Market Impacted by Pandemic

Jewelry Demand Expected to Reset in 2021 with Forecasted Increases in Key Markets

Although the global silver jewelry market has been negatively affected by the COVID-19 pandemic and higher silver prices, jewelry consumption is expected to rise from its current 20 percent of total demand to 25 percent of demand by the mid-2020s, according to the Silver Institute's *Silver Jewelry Report* that was released December 7th.

Produced by precious metals consultancy [Metals Focus](#), the report noted that despite a 23 percent drop in global silver jewelry demand in 2020, a double-digit percent bounce is expected in 2021. "After this year's expected fall in global silver jewelry fabrication, we are forecasting growth of 13% in 2021, helped by the contribution from re-stocking," the report stated.

Some key markets, however, may recover from these losses more quickly. The US is expected to drop 10 percent in 2020 and recover 10 percent next year, while Europe will drop 17 percent this year and bounce back 14 percent in 2021.

Despite the drop in worldwide demand, silver jewelry is more resilient than gold, which is anticipated to fall by 33 percent.

The report offers analyses of key markets. Following are highlights:

United States: Jewelry demand is expected to grow by 10 percent in 2021 primarily due to a recovery in consumer spending, offsetting the 10 percent forecasted loss in 2020. The long-term outlook is for steady growth to emerge, primarily due to steadier economic expansion, with record levels of silver jewelry consumption achieved by the mid-2020s.

India: Demand in 2020 is projected to fall to a seven-year low, driven by economic weakness, record domestic silver prices and the pandemic. However, 2021 is forecast to see a strong recovery, and the outlook beyond 2021 is promising as the Indian economy improves, coupled with rising consumer confidence and as the market increasingly embraces higher purity, sterling silver jewelry.

Europe: European silver jewelry demand is forecast to fall by 17 percent in 2020, but next year's forecast calls for a rebound of 14 percent as retailers rebuild stocks and consumption starts to return to normal levels.

East Asia: After this year's expected 17 percent drop in silver jewelry demand, East Asian jewelry fabrication in 2021 is expected to strengthen. Recovery in both the Thai and Chinese jewelry markets will fall just short of 2019's pre-COVID levels.

To download the complimentary report, [please click here](#).

Military-Grade Antibacterial Smartphone Uses Silver-Based Technology

Reading, UK-based [Bullitt Group](#), a maker of military-grade smartphones, has introduced their first antibacterial phone using the [Biomaster](#) silver-based technology.

The entry-level Cat S42 Android smartphone with antimicrobial protection is designed for military use but will be available to the public in 2021 for about US\$400. The company hopes to include Biomaster technology into all of its smartphones by next year. The screen is made from Corning Gorilla Glass 5s.

Because the phone is waterproof, it can be washed with soap and water as well as chemical sanitizers and bleach. Company officials says this makes it especially applicable for healthcare workers.

Biomaster coatings are used in many commercial and consumer products including reusable shopping bags, office paper and packaging.



The military-grade Cat S42 smartphone is waterproof, shockproof and has silver-based antibacterial properties.

Silver-Oxide Batteries Help Keep Mercury Out of Landfills

Watch battery maker [Murata](#) has announced that it has produced over 4 billion units of no-mercury, silver-oxide micro-batteries, saving 7,055 pounds (3,200 kg) of mercury from potentially entering into the environment from spent batteries.

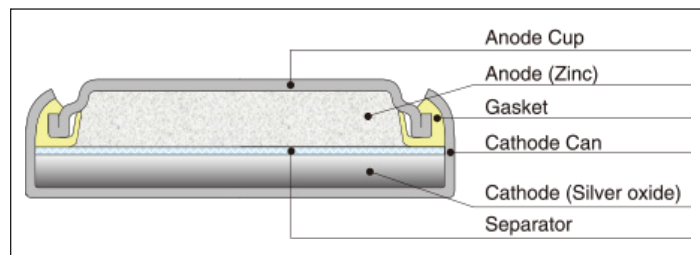
Murata, bought by Sony in 2017, made the world's first mercury-free, commercially-available silver-oxide batteries in 2004. (Silver-oxide batteries with mercury were first produced by the company in 1977.)

Mercury had previously been added to button batteries to reduce the levels of hydrogen gas and the pressure it produced inside the battery enclosure. That pressure sometimes caused leakage during long-term storage. However, Murata engineers were able to eliminate mercury through a unique sealing solution to maintain air pressure inside the battery without breaching the enclosure.

Silver-oxide batteries are not considered hazardous under US Department of Transportation guidelines and disposal of silver oxide batteries in regular household waste is permitted in most jurisdictions.

Silver-oxide batteries have a high energy-to-weight ratio and maintain a nearly constant voltage output until they are fully discharged.

The silver-oxide battery market, including button batteries, is forecast by Accurize Market Research to reach US\$21.46 Billion by 2026, growing at a compound annual growth rate of 4.3% from 2019 to 2026. The Asia-Pacific region dominated the global silver oxide battery market in 2018 owing to high demand from China, Japan, and India, their report noted.



MURATA

A 'J-shaped' gasket acts as seal to maintain air pressure inside the battery without the need for mercury.

Habanero Peppers Produce Silver Nanoparticles in Eco-Friendly Way

Producing silver nanoparticles using plants, fruits and vegetables is growing more common, because the method offers an eco-friendly method combined with low-cost and abundant materials.

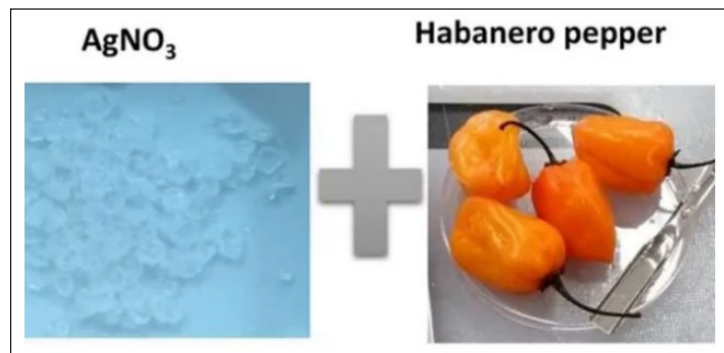
Scientists have used strawberries, pomegranates, seaweed, pineapples, and now habanero peppers.

The method involves synthesizing silver nanoparticles through a process known as chemical reduction, which teases out silver nanoparticles from silver nitrate by introducing the solution to substances with high oxidation properties.

In this case, researchers David Omar Oseguera-Galindo and Eden Ocegüera-Contreras, both of the University of Guadalajara, Mexico, and Dario Pozas-Zepeda of the University of Colima, Mexico, chose habaneros not only for their antioxidant content but also because of their economic importance as a traditional Mexican crop. Studies have shown that high antioxidant flora, like peppers, help to increase nanoparticle yield.

“The novelty of this research is that it offers a schematic of silver nanoparticle formation by the biosynthesis method,” Oseguera-Galindo said in *SPIE*, the journal of the [International Society for Optics and Photonics](#). “In this schematic is included a possible mechanism of the biomolecules and its effect in the silver ion reduction for favoring nanoparticle formation.”

Not surprisingly, the group's experiments showed that the more habaneros they added to the silver nitrate solution, the more nanoparticles they were able to produce. The original research article appeared in the [Journal of Nanophotonics](#).



SPIE

Silver nanoparticles are synthesized with the help of spicy habanero peppers.

Perth Mint Highlights *The Simpsons* TV Show

The [Perth Mint](#) is offering a .999, 2-ounce silver coin depicting one of the world's most well-known TV characters: Homer Simpson of *The Simpsons*.

This officially-licensed product shows on the reverse the grinning character whose show is broadcast to more than 60 countries in 20 languages. *The Simpsons* has been running since 1989 and, in 2018, it became the longest-running prime time, scripted show in television history.

An effigy of Queen Elizabeth II is on the obverse.

The 2021-dated coin has a face value of 2 Tuvaluan dollars (TVD) which is the currency of Tuvalu, an independent island nation within the British Commonwealth. The country has never had banknotes of its own, and has been issuing coins since 1976, according to Perth Mint officials. The Tuvaluan dollar is used as a unit of account and is pegged to the Australian dollar at parity.

Mintage is capped at 2,000 and the coin retails for US\$167.64.

The Perth Mint had also issued 2019-dated Simpson character silver bullion coins including the infant Maggie and Homer's wife, Marge.



The Perth Mint is highlighting *The Simpsons* TV show with a silver bullion coin featuring an image of Homer Simpson.

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